



# NOAA 'Bout Weather



Written by the staff at the National Weather Service in Blacksburg, VA

Also in this issue, look for Severe Weather Safety Information provided by National Weather Service Blacksburg's Warning Coordination Meteorologist, Phil Hysell. This information can be found scattered through different pages of the newsletter.

## Inside this Issue:

**Page 2-5:** Winter Summary and Monthly Reviews

**Page 6:** Tropical Outlook

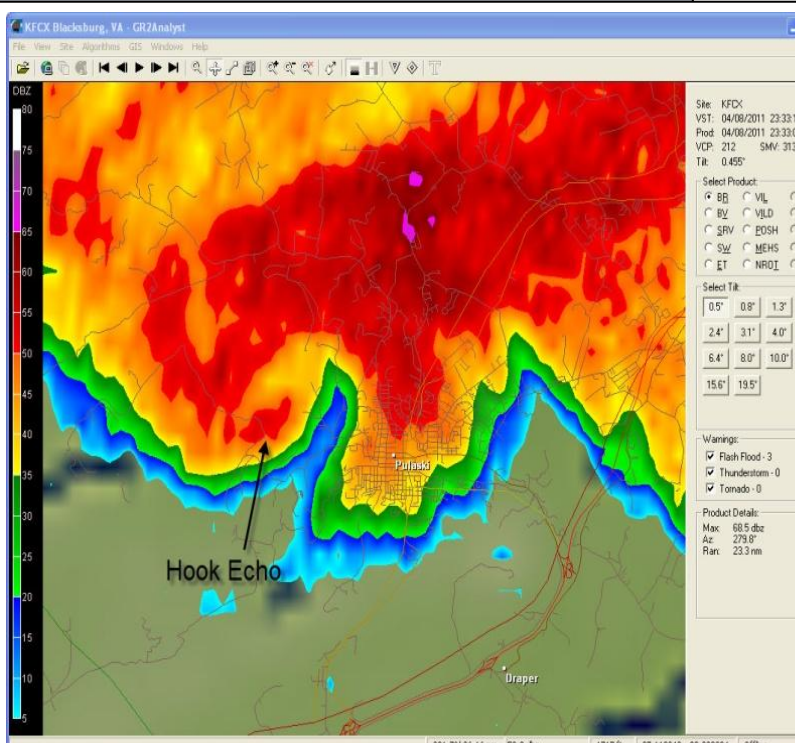
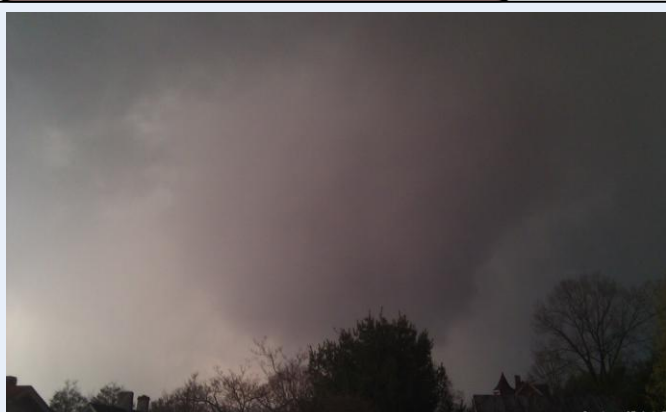
**Page 7-8:** Weather Folklore

**Page 8-11:** Summer Outlook and Summer Averages

**Page 12-15:** Major Winter Storm Reviews

**Page 16:** Want to Save Lives?

**Page 16-17:** Two New Meteorologists at NWS Blacksburg



Right: Radar image from time of Pulaski EF-2 Tornado on April 8<sup>th</sup> 2011.

Top Right: Possible picture of Pulaski Tornado taken by Dakota Burton on Madison Ave, in Pulaski, looking west.

## April Severe Weather and Tornadoes

April has been a very active month with regards to severe weather and tornadoes across the Blacksburg County Warning Area. A total of 6 tornadoes have occurred through April 22<sup>nd</sup>, with two of them being rated EF2. A line of severe thunderstorms produced widespread wind damage and one tornado in Surry County, North Carolina on the 4<sup>th</sup> and 5<sup>th</sup>. On April 8<sup>th</sup>, two tornadoes touched down in Pulaski County, Virginia, resulting in significant damage in parts of Pulaski. On April 16<sup>th</sup>, the mid-Atlantic region experienced one of its most significant outbreaks of violent tornadoes in many years. In our area, one tornado touched down in Rockbridge County, Virginia, one in Caswell County, North Carolina, and one in Halifax County, Virginia. Below are links to more detailed summaries of each of these severe weather events:

- [April 4-5<sup>th</sup> Damaging Winds and Tornado](#)
- [April 8<sup>th</sup> Pulaski Tornadoes](#)
- [April 16<sup>th</sup> Tornado Outbreak](#)



# NOAA 'Bout Weather



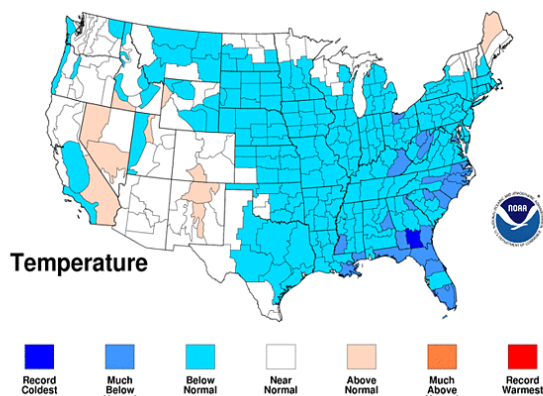
## Winter Overview and Monthly Summaries

By Marc Chenard (Meteorologist Intern)

The winter of 2010-2011 (DEC-FEB) finished with below normal temperatures and precipitation across most of the Blacksburg County Warning Area. Snowfall was above normal across the western mountains...where persistent upslope snow showers enhanced snowfall amounts. Across much of the rest of the County Warning Area, snowfall was below normal, with the exception of Southside Virginia and adjacent North Carolina, where amounts were slightly above normal. The winter ranked as the 26<sup>th</sup> coldest in Virginia, 23<sup>rd</sup> coldest in West Virginia and the 14<sup>th</sup> coldest in North Carolina. It also ranked as the 7<sup>th</sup> driest in Virginia, 32<sup>nd</sup> driest in West Virginia, and the 3<sup>rd</sup> driest in North Carolina. Both of these rankings go back 116 years.

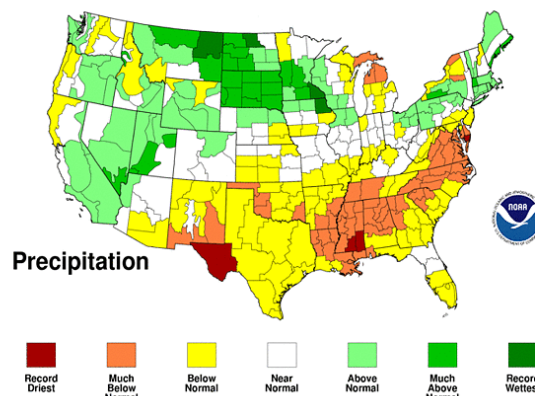
### Dec 2010 - Feb 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



### Dec 2010 - Feb 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



Climate Site	AVG Temperature (Anomaly)	AVG Max Temp (Anomaly)	AVG MIN Temp (Anomaly)	Total Precipitation (Anomaly)	Total Snowfall
Bluefield	32.0 (-3.5)	39.5 (-3.7)	24.5	8.88 (+0.09)	57.0
Blacksburg	31.1 (-2.0)	40.3 (-3.6)	22.0 (-0.3)	6.31 (-2.95)	18.2
Roanoke	36.4 (-1.9)	44.8 (-3.0)	28.0 (-0.7)	5.01 (-4.16)	10.2
Lynchburg	34.8 (-2.4)	45.0 (-2.4)	24.5 (-2.3)	5.58 (-4.29)	8.2
Danville	37.2 (-1.9)	47.7 (-2.6)	26.7 (-1.2)	5.01 (-5.59)	11.0

Table 1: Winter Climate Statistics

### **THUNDERSTORM WIND SAFETY**

A Severe Thunderstorm Warning means 58 mile per hour winds or greater will occur, or quarter size hail or larger is expected. Severe Thunderstorm winds can be stronger than most tornadoes across our area. Damaging Severe Thunderstorm winds are more common than tornadoes, and can overturn mobile homes, tear roofs of homes and buildings, and can uproot trees. Therefore, it is important that you take shelter, preferably in a basement, and stay away from windows during a Severe Thunderstorm Warning.

Spring 2011 Edition

### **TORNADO SAFETY**

A Tornado Warning is issued by the National Weather Service when a tornado has been sighted, or indicated by doppler radar. In a home or building, move to the basement and get under a sturdy piece of furniture. If no basement is available, move to a small interior room away from windows on the lowest floor and get under something sturdy. Mobile homes offer little protection from tornadoes. You should leave a mobile home for more sturdy shelter. Never try to outrun a tornado in your car; instead leave it immediately for safe shelter. Do **NOT** seek shelter under a highway bridge or overpass!



# NOAA 'Bout Weather

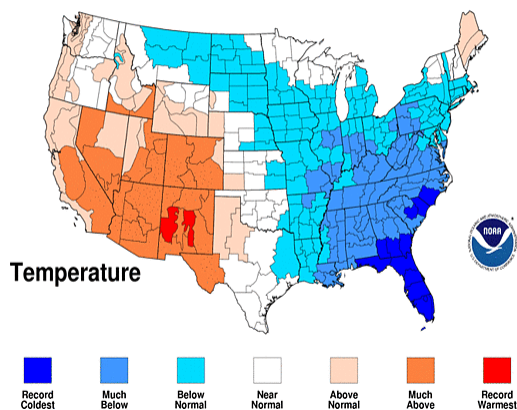


## December Review

December was a cold and dry month for much of the Blacksburg County Warning Area (CWA). Most of the precipitation for the month fell on the first, as a strong cold front pushed through the region. It was this front that helped establish the large trough of colder air over the eastern United States that persisted for much of the month. Another strong front re-enforced the cold air on the 12<sup>th</sup>. Large storm systems were few and far between, with the large trough keeping northwest flow over our region, and limiting the amount of moisture pushed into the area. This persistent northwest flow allowed for snow showers over the mountains. Bluefield reported at least a trace of snow 23 out of the 31 days and Blacksburg 22 out of the 31, but these amounts were generally light, with the highest amounts in the higher western elevations. In fact, Bluefield's 32.1 inches of snow makes this their snowiest December on record. Only a few storms were able to tap the Gulf of Mexico and Atlantic moisture and produce more significant amounts of precipitation, and these were on the 16<sup>th</sup> and again on Christmas Day. Statistically this December had the coldest average high temperature on record at Blacksburg, Roanoke and Danville.

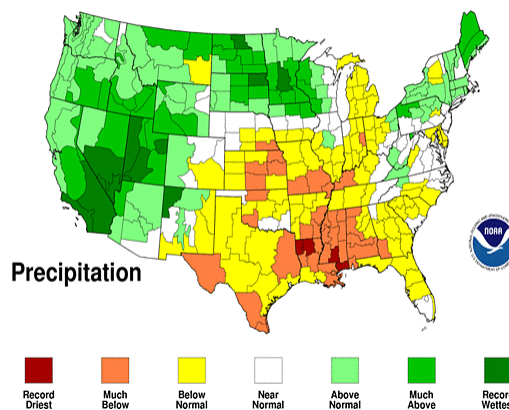
### Dec 2010 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



### Dec 2010 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



Climate Site	AVG Temperature (Anomaly)	AVG Max Temp (Anomaly)	AVG MIN Temp (Anomaly)	Total Precipitation (Anomaly)	Total Snowfall
Bluefield	25.5 (-11.1)	31.3 (-12.8)	19.7 (-9.4)	3.39 (+0.57)	32.1
Blacksburg	25.9 (-8.2)	32.8 (-12.1)	19.0 (-4.2)	2.51 (-0.36)	10.4
Roanoke	31.3 (-7.8)	38.0 (-10.6)	24.7 (-4.9)	1.99 (-0.87)	7.2
Lynchburg	30.4 (-7.8)	39.4 (-9.0)	21.3 (-6.6)	2.16 (-1.07)	6.3
Danville	33.0 (-7.1)	41.6 (-9.6)	24.4 (-4.6)	1.79 (-1.37)	7.4

Table 2: December Climate Statistics



# NOAA 'Bout Weather

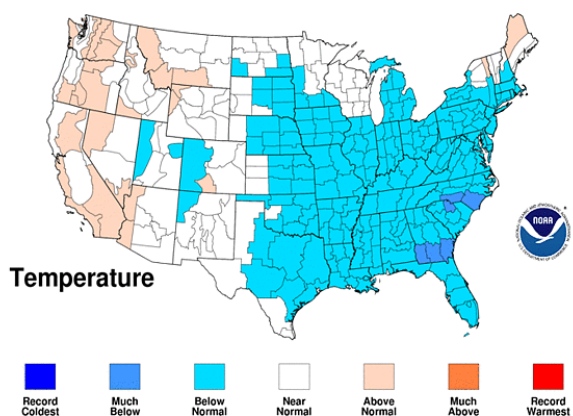


## January Review

January saw temperatures slightly below normal and precipitation well below normal across the Blacksburg County Warning Area. A mean trough over the eastern United States was once again the culprit in bringing below normal temperatures and precipitation. A strong cold front moved through to begin the month, setting the stage for the cold month to follow. The storm systems that moved through were starved for moisture, as continued northwest flow, caused by the eastern trough, prevented moisture from moving north. Just two storms were able to produce more than minor precipitation amounts, one on the 7<sup>th</sup>, and the other on the 26<sup>th</sup>. Like December, mountain upslope snow showers were common, with accumulations limited to the higher western elevations. Brief warm ups occurred at the beginning, middle and end of the month, which allowed the month as a whole to end warmer than December.

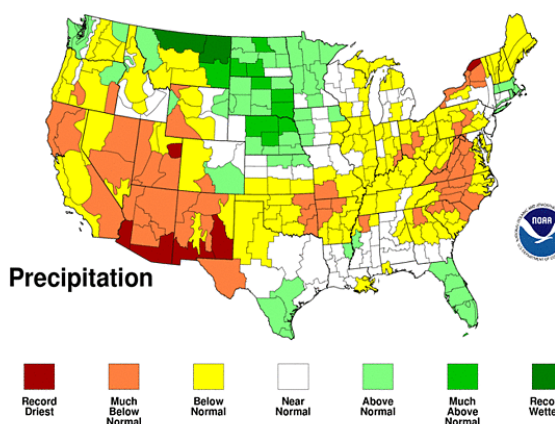
### Jan 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



### Jan 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



Climate Site	AVG Temperature (Anomaly)	AVG Max Temp (Anomaly)	AVG MIN Temp (Anomaly)	Total Precipitation (Anomaly)	Total Snowfall
Bluefield	29.6 (-3.1)	36.4 (-3.9)	22.8 (-2.2)	1.97 (-1.09)	23.4
Blacksburg	29.1 (-1.8)	37.7 (-3.4)	20.5 (-0.1)	0.84 (-2.53)	6.6
Roanoke	34.7 (-1.1)	42.4 (-2.6)	26.9 (+0.3)	0.82 (-2.41)	2.4
Lynchburg	32.9 (-1.6)	42.4 (-2.1)	23.4 (-1.1)	1.30 (-2.24)	1.9
Danville	34.8 (-1.8)	44.8 (-2.6)	24.8 (-1.0)	1.24 (-2.79)	3.3

Table 3: January Climate Statistics

### Spotter Information:

The National Weather Service in Blacksburg wants to be notified if you witness any of the following:

- Tornado or funnel cloud
- Wind Damage such as structural damage or trees/power lines down.
- Measured wind gusts of 50 MPH or greater
- Hail of any size

- Water flowing over a road
- Creeks or streams leaving their banks
- Snowfall of 3 inches, and total snowfall
- When Ice accumulates to ¼ of an inch

Any of these events should be sent to the National Weather Service as quickly as possible, if it is safe. To reach us, simply call: **1-866-215-4324.**





# NOAA 'Bout Weather

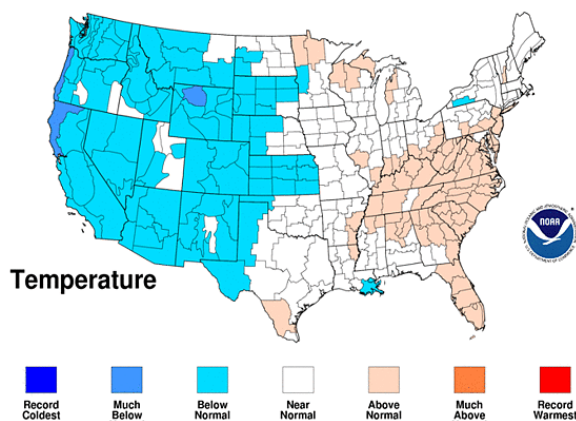


## February Review

February finally saw temperatures rebound to above normal levels, while precipitation remained slightly below normal across most of the Blacksburg County Warning Area. Snowfall was well below normal across the area due to warm temperatures and a lack of many significant storm systems. The month started off on the warm side as an upper level ridge of warmer temperatures set up over the eastern third of the country. However a strong cold front moved through on the 2<sup>nd</sup>. A trough set up over the eastern United States through the 11<sup>th</sup> resulting in a spell of below normal temperatures. A large ridge then took control of our weather for the rest of the month leading to well above normal temperatures. Most storm systems remained to our north and were weak and moisture starved. The exception was on the 24<sup>th</sup>, when a strong low moved just to our north bringing much needed rain to the area.

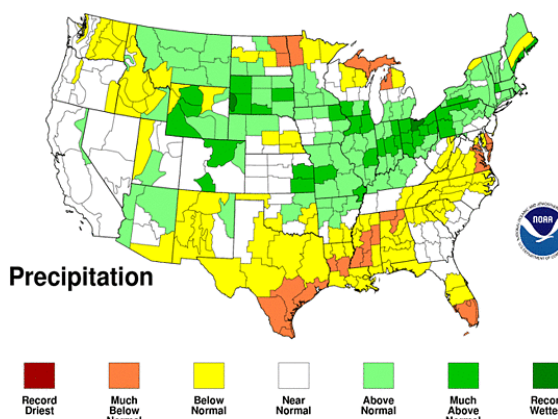
### Feb 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



### Feb 2011 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



Climate Site	AVG Temperature (Anomaly)	AVG Max Temp (Anomaly)	AVG MIN Temp (Anomaly)	Total Precipitation (Anomaly)	Total Snowfall
Bluefield	40.9 (+4.8)	50.7 (+6.4)	31.1 (+3.2)	3.52 (+0.61)	1.5
Blacksburg	38.5 (+5.0)	50.3 (+5.5)	26.6 (+4.5)	2.96 (-0.06)	1.2
Roanoke	43.2 (+4.1)	54.1 (+5.0)	32.3 (+3.3)	2.20 (-0.88)	0.6
Lynchburg	41.0 (+3.2)	53.2 (+4.6)	28.9 (+2.0)	2.12 (-0.98)	T
Danville	43.8 (+4.1)	56.6 (+4.9)	31.0 (+3.3)	1.98 (-1.43)	0.3

Table 4: February Climate Statistics

### Lightning Safety:

Lightning kills more people in an average year than tornadoes. Although Severe Thunderstorm Warnings are NOT issued for lightning, you should move to shelter when thunder is heard as lightning can strike 10 to 15 miles away from where the rain is falling.

For more information about lightning safety, visit:  
[www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov)

If outside, go to a safe shelter immediately, such as a sturdy building. A hard top vehicle with the windows up can also offer fair protection. If you are boating or swimming, get out of the water immediately and move to a safe shelter away from the water. During a thunderstorm you should avoid isolated trees or other tall objects, bodies of water, sheds, fences, convertible automobiles, tractors, and motorcycles. If inside, stay off corded phones, computers and other electrical equipment that put you in direct contact with electricity or plumbing. When inside, wait 30 minutes after the last strike, before going out again.



# NOAA 'Bout Weather



## ACTIVE 2011 TROPICAL SEASON EXPECTED WITH AN ABOVE AVERAGE THREAT TO THE U.S.

By Jim Hudgins (Senior Forecaster)

Following a very active 2010 tropical season that saw 19 named storms and 2 additional depressions (Fig 1), the 2011 outlook is again rather similar with an above average number of storms forecasted per the early seasonal outlook from Colorado State University. However despite seeing an abundance of systems in 2010, very limited impact was seen in the U.S. with most storms either staying in the open waters of the Atlantic or affecting locations from the Caribbean to Newfoundland. In particular two of the most damaging storms, Igor and Tomas, had their names retired at the end of 2010 due to the number of deaths and amount of damage they inflicted. Igor was a classic Cape Verde hurricane that reached Category 4 strength with 155 mph winds before striking Bermuda as a weakened Category 1 storm in mid September. The storm then accelerated making landfall in Newfoundland on September 21<sup>st</sup> as a weak hurricane but with a very large and destructive wind field. Igor resulted in three deaths and around \$200 million in damage mainly in Newfoundland. Tomas was a late season Category 2 hurricane that hit parts of the Windward Islands near the end of October, and affected areas from Jamaica to Haiti between November 5<sup>th</sup> and 6<sup>th</sup> bringing severe flooding to many of the islands. Around 50 deaths were associated with Tomas across the Caribbean with damage figures in excess of \$500 million.

In the current outlook for the upcoming hurricane season, forecasters have set probabilities for at least one landfalling major (Category 3-4-5) storm along the entire U.S. coastline above 70% with the normal average being just over 50%. The number of named storms expected is 16, with 9 of those becoming hurricanes, and 5 majors. This correlates to a seasonal average of 9.6 named storms, 5.9 hurricanes, and 2.3 majors. Similar to last year, El Nino conditions are again not expected with a gradual shift from the current La Nina toward a more neutral ENSO phase by this summer which still supports the higher number of tropical cyclones.

The names for the 2011 hurricane season include: Arlene, Bret, Cindy, Don, Emily, Franklin, Gert, Harvey, Irene, Jose, Katia, Lee, Maria, Nate, Ophelia, Philippe, Rina, Sean, Tammy, Vince, and Whitney. The season officially starts on June 1<sup>st</sup> and runs until November 30<sup>th</sup>.

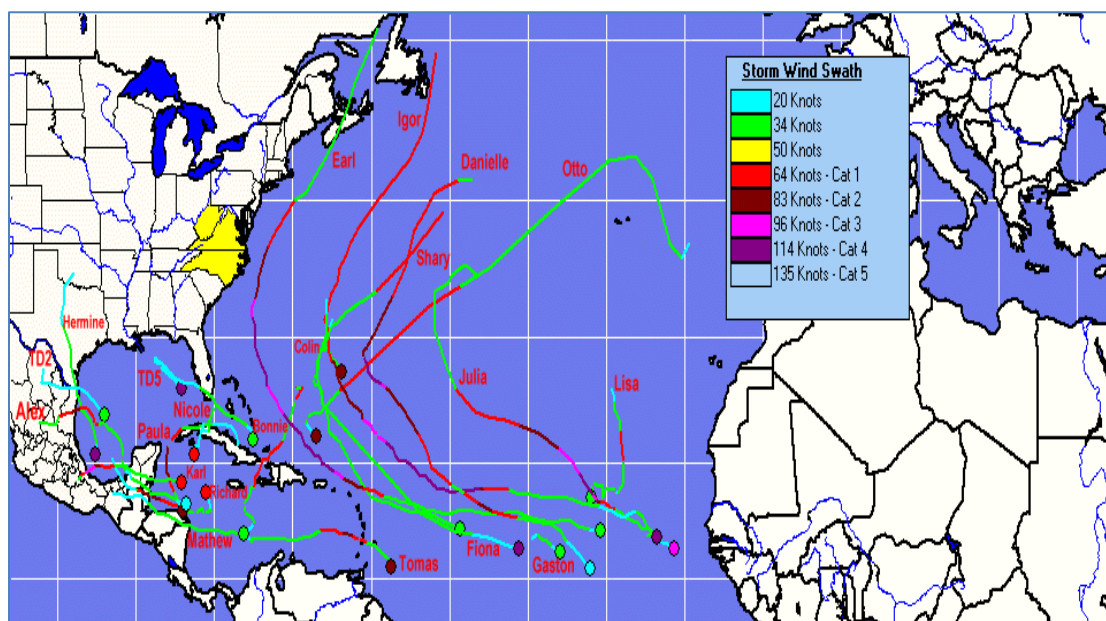


Fig 1. Tropical Storm Tracks from the 2010 Atlantic season.



# NOAA 'Bout Weather



## WEATHER FOLKLORE

By Jim White (Observing Program Leader)

Weather lore is the body of informal folklore related to the prediction of the weather. It has been a human desire for centuries to make accurate weather predictions. Oral and written history is full of rhymes, anecdotes and adages meant to guide the uncertain in determining whether the next day will bring fair or foul weather.

It is in Earth's middle latitudes, between roughly 30° to 60° North and South, that a significant portion of human activities take place. It is also within these rough boundaries that 'weather' can be said to happen, that is, where meteorological phenomena do not persist over the long term, and where it may be warm, sunny, and calm one day, and cold and stormy the next.

Weather Folklore, therefore, refers to this mid-latitude region of daily variability.

***Red sky at night, sailor's delight,***

***Red sky at morning, sailors take warning.***

Weather systems typically move from west to east, and red clouds result when the sun shines on their undersides at either sunrise or sunset. At these two times of day, the sun's light is passing at a very low angle through a great thickness of atmosphere, the result of which is the scattering out of most of the shorter wavelengths — the greens, blues, and violets — of the visible spectrum, and so sunlight is heavy at the red end of the spectrum. If the morning skies are red, it is because clear skies to the east permit the sun to light the undersides of moisture-bearing clouds coming in from the west. Conversely, in order to see red clouds in the evening, sunlight must have a clear path from the west in order to illuminate moisture-bearing clouds moving off to the east.

***Seagull, seagull sit on the sand.***

***It's never good weather when you're on land.***

Seagulls are not especially fond of standing or walking. They are naturally at home in flight, and where they can, they sleep

on the water. However, seagulls, like people, find gusty, turbulent wind difficult to contend with, and under such circumstances, the water is also choppy and unpleasant. Seagulls huddled on the ground are not a predictor of bad weather as much as they are a sign that the weather is already bad.

***A cow with its tail to the West makes the weather best,***

***A cow with its tail to the East makes the weather least***

Cows prefer not to have the wind blowing in their faces, and so typically stand with their backs to the wind. Since westerly winds typically mean arriving or continuing fair weather and easterly winds usually indicate arriving or continuing unsettled weather, a 'cow-vane' is as good a way as any of knowing what the weather will be up to for the next few hours.

***When sounds travel far and wide,***

***A stormy day will betide.***

This piece of lore is true in summer but conditionally false in winter. Moisture-laden air is a better conductor of sound than dry air, so moist air carries sounds farther. In winter, temperature also becomes an important factor. If the air is warm and moist, the rule holds. If the air is very cold, it is also very dense and a better sound conductor than warm air, and also likely to be much drier. When sounds carry over a long distance, the cold, clear weather is likely to linger.

***Frequent heavy dew keeps the heavens blue.***

Heavy dews occur on clear nights with settled conditions, which usually indicates that the following day will be clear and dry. The dew forms as the ground cools and radiates its heat back to the sky. As the surface temperature drops to the dew point — that is, the temperature to which the air must be cooled to reach saturation — the water vapor in the air is deposited on the ground as dew. At sunrise the dew evaporates as the heat grows stronger.

***Mackerel sky, mackerel sky, not long wet, not long dry.***

It is the herringbone pattern formed by long, wispy cirrus clouds that produces the mackerel sky referred to in this saying. These cirrus clouds, called mares' tails because of the



# NOAA 'Bout Weather



resemblance, form at high altitudes and indicate that a low-pressure system carrying moisture laden clouds is moving in from the west. This usually means an increase in wind speeds, a shift to blustery east winds, and increased cloud cover and precipitation.

***If the rooster crows on going to bed, you may rise with a watery head.***

The decrease in atmospheric pressure, which may signal an approaching storm, is believed to especially affect birds and may account for a sudden spurt in restless behavior. In that case a rooster might react in response by crowing in the middle of the night rather than waiting until dawn.

***When forests murmur and the mountain roars, then close your windows and shut your doors.***

Winds tend to begin at higher elevations, mountaintops for example, and then descend to Earth. When a cold front associated with a storm approaches, the air current will stir the forest. Meanwhile, on the top of the mountains, the winds will have begun to roar.

***The south wind warms the aged.***

In many cases, this saying is true enough. Retirees often seek the warmth of southerly climates. However in summer and

autumn the southerly winds, far from being harbingers of benign weather, can produce very wet and stormy weather, especially hurricanes, from the south Atlantic and the Gulf of Mexico.

***A town will be protected from tornadoes if it is protected by a river.***

There is no reason to think that any location is protected from tornadoes, regardless of its perceived geographical advantage. Tornadoes have proven quite capable of crossing rivers of all kinds and widths.

***Walking in the rain keeps you drier than running.***

An old wives' tale insists that it's preferable to walk in a shower rather than run because running will only make you wetter. It sounds counterintuitive, but is there any wisdom in it? A recent study done in Italy contended that if the distance was sufficiently short, a person who ran would get 10 percent less wet than someone who walked. Not really worth the trouble. Another study conducted at the National Climatic Data Center in North Carolina, however, determined that over a distance of 330 feet (100 meters), running was a far more efficient way of keeping oneself drier, 40 percent more, than walking was.

## Summer 2011 Outlook and Averages

By Will Perry (Senior Forecaster)

Getting to see the transition to warmer weather after a cooler than normal winter, that has been holding on into early Spring. The La Nina is forecast to weaken this summer as the El Nino Southern Oscillation heads toward neutral conditions.

For our area, there are no strong climate signals to indicate whether our summer will be hot, cool, wet, dry or normal. The official forecast from the Climate Prediction Center (CPC) issued March 17<sup>th</sup>, 2011 does show that there is a slight inkling of cooler than normal temperatures expected June through August for most of the area (Figure 1), but especially from the mountains west into the Ohio Valley. As for precipitation, anything is possible, as the forecast is for equal chances (Figure 2) which means no strong indications for a wetter or drier summer.



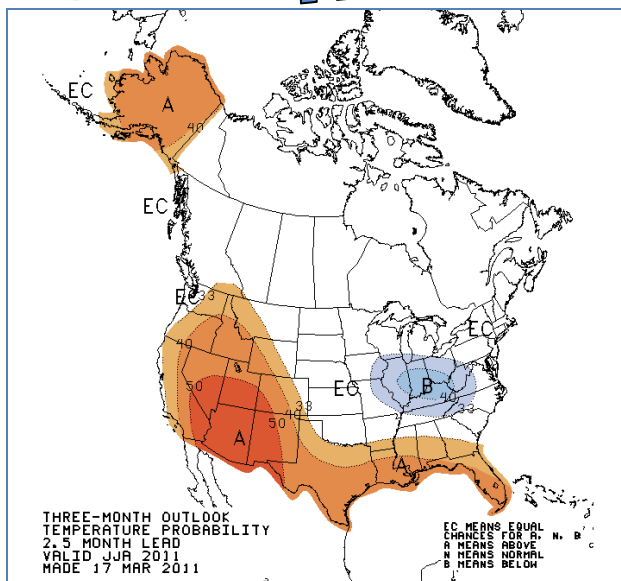


Figure 1

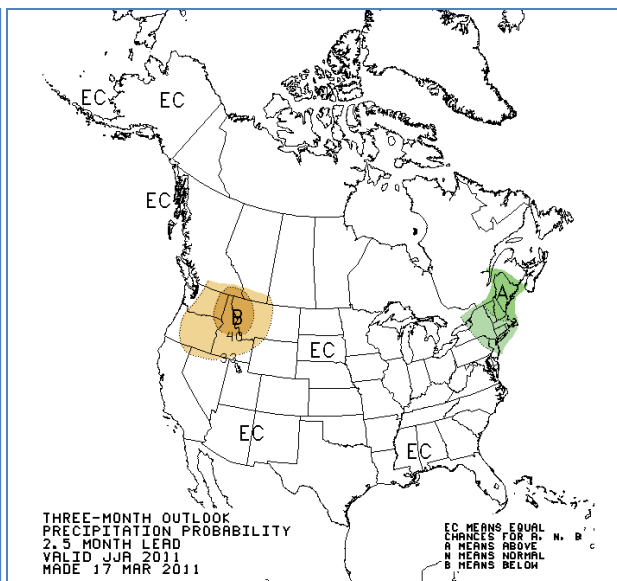


Figure 2

Just for fun, we will look at how June-August fared when coming out of a La Nina episode to a neutral. Looking back at the past 2 times this occurred, were 2008, and 2000. The Summer of 2008 started out warmer than normal, but by the end of June through August, temperatures ran at or below normal (Figure 3). As for rainfall, the Summer of 2008 averaged close to normal over the western half of the forecast area, with drier conditions in the east (Figure 4). Although the Summer of 2008 was known for some moderate to severe drought conditions especially in western North Carolina. For other information about Summer 2008, visit the newsletter article on that. [http://www.erh.noaa.gov/rnk/Newsletter/Fall\\_2008/climate/FALL08\\_CLIMATE\\_article.htm](http://www.erh.noaa.gov/rnk/Newsletter/Fall_2008/climate/FALL08_CLIMATE_article.htm)

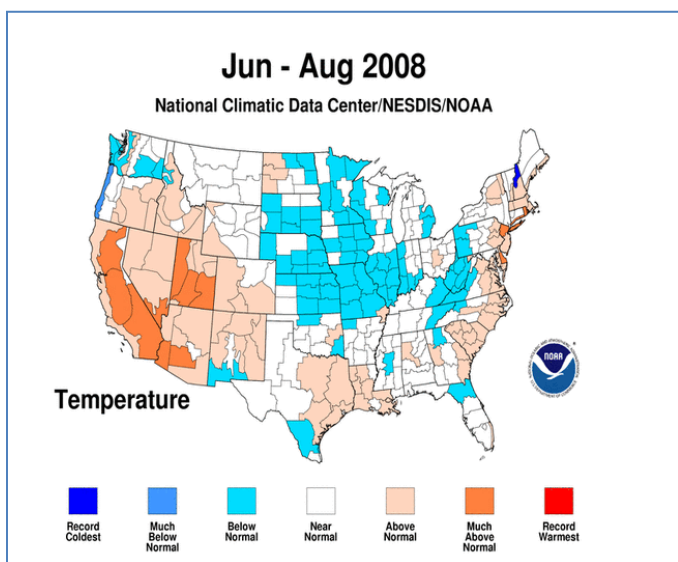


Figure 3

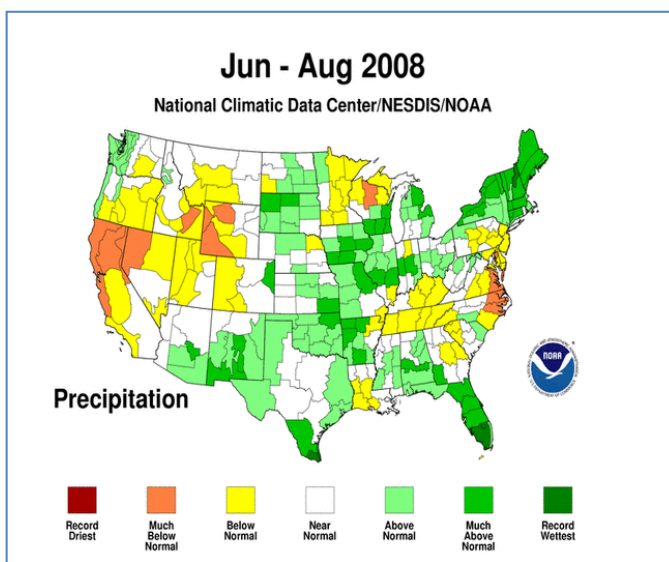


Figure 4



# NOAA 'Bout Weather



In 2000, temperatures were close to or just below normal, with the below normal occurring in the piedmont (Figure 5). Precipitation was at or above normal (Figure 6), although some severe drought conditions sneaked into the North Carolina mountains mid-summer.

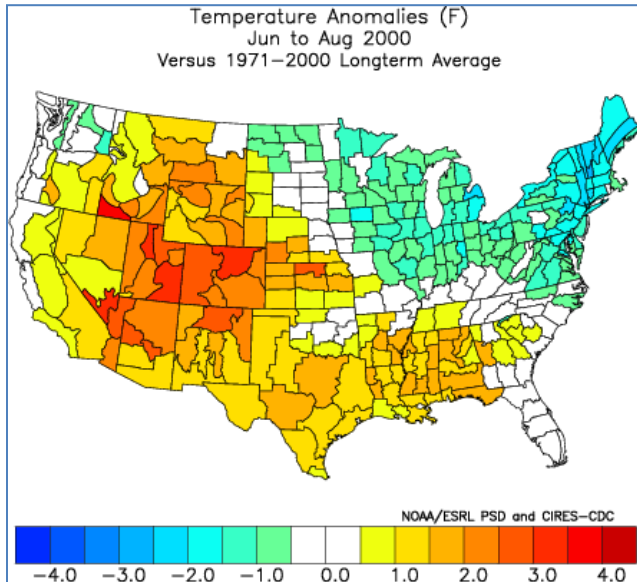


Figure 5

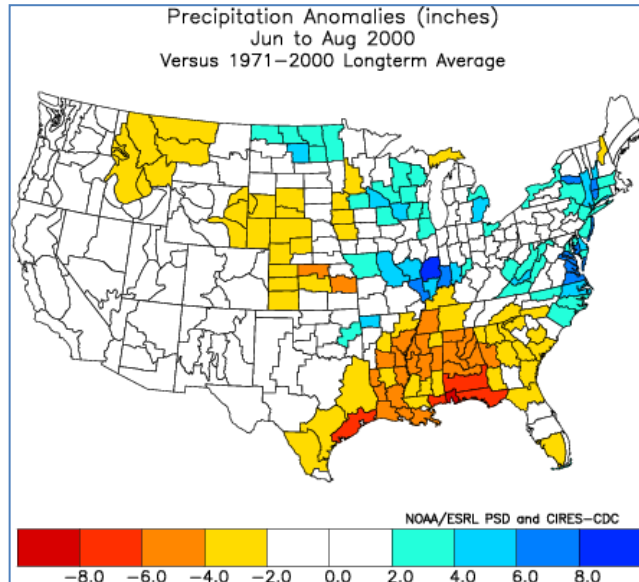


Figure 6

So we cannot glean too much, from this except maybe looking at temperatures closer to or below normal, with maybe potential for drier conditions in the Southern Appalachians.

## A Look At Summertime Averages

Here's a look at some of our climate station averages and extremes for the summer months of June through August, for their period of record. For this article, the averages will be for high temperatures and precipitation.

### Roanoke

- At Roanoke, Virginia, the period of record is since 1912. The average high temperature in June is 84, which warms to 87.1 for July, and cools to 85.8 for August. For the 3-month period that comes out to 85.7 degrees.
- Roanoke has averaged just under 12 inches of rain during the summer.

For the period of record:

Spring 2011 Edition

- Hottest temperature recorded during the summer was 105 degrees, set three times, most recently in 1983, then well back in 1936 and 1930. Amazingly, the 1983 hot temperature occurred in late August, when normally you would expect it to be in July.
- The coldest low temperature recorded during the summer was 36 degrees in 1913, which occurred in mid June.
- The wettest summer was in 1940 when 26.85 inches of rain fell.
- The driest was in 1993 with 4.77 inches.

### Lynchburg

- The period of record for Lynchburg starts in 1893. The average high temperature in June is



# NOAA 'Bout Weather



83.5 degrees, warming to 86.8 degrees in July and cooling back to 85.2 degrees in August, for summer average high of 85.2 degrees.

- Lynchburg has averaged 11.78 inches of rain during the summer.
- The hottest temperature at Lynchburg was 106 degrees set in early July 1936.
- The coldest low temperature was 40 degrees set several times, all in early June, most recently in 1997, then again in 1997 and 1945.
- The wettest summer was in 1989 when 22.66 inches of rain fell.
- The driest summer was 3.89 inches which fell in 1930.

## Danville

- The period of record for Danville begins in 1948.
- The average high temperature in June is 86.1, warming to 89.6 in July, then dropping to 88.3 in August, which gives the summer an average high of 88.
- Danville has averaged around 12 inches of rain per summer.
- The hottest temperature recorded was 105 degrees, which occurred 3 times, most recently in 1990, then again in 1983 and 1954.
- The coolest temperature 40 degrees in 1977.
- The wettest summer was in 1995, when almost 23 inches (22.94) fell.
- The driest summer in 2007, when 6.76 inches fell.

## Blacksburg

- The period of record for Blacksburg begins in 1952.
- The average high temperature in June is 79 degrees, warming to 82.6 in July, and cooling to 81.7 in August, giving the season an average high of 81.1 degrees.
- Blacksburg has averaged just over 11 inches of rain since records began for the summer season.
- The hottest temperature recorded was 99 degrees a couple of times, most recently in 1983, then back in 1954.
- The coldest temperature was 30 degrees in mid June of 1972.
- The wettest summer was 19.82 inches in 1992.
- The driest was 6.08 inches in 1991.

## Bluefield

- Records began in Bluefield in 1959.
- The average high temperature for June is 76.4 degrees, warming to 79.1 in July, and dropping to 78.0 in August.
- Average rainfall for summer is 10.9 inches
- The hottest temperature recorded was 96 degrees, set in 1988.
- The coolest temperature was 37 degrees in 1972.
- The wettest summer was in 2006, when 19.16 inches of rain fell.
- The driest summer occurred in 1999, when 6.12 inches fell.



# NOAA 'Bout Weather



## Major Storm Summaries

By Marc Chenard (Meteorologist Intern)

The winter of 2010-2011 did not feature too many significant winter storms. In December, a clipper brought snow on the 4<sup>th</sup>, a prolonged upslope snow event occurred across the western mountains on the 12<sup>th</sup>, where up to one foot fell across the higher western facing slopes, a wintry mix moved in on the 16<sup>th</sup>, and we also had a Christmas Day snow storm. January featured two significant upslope snow events to begin the month, followed by a wet mountain snow on the 26<sup>th</sup>. No significant winter events impacted the region in February. Below I will summarize a few of our bigger events for this winter.

### December 4<sup>th</sup> Clipper

A clipper system that was centered over Nebraska at 7pm on the 3<sup>rd</sup> quickly moved southeast to over Tennessee and North Carolina by the afternoon of the 4<sup>th</sup>. Abundant moisture was transported out ahead of this low pressure system, and this combined with strong lift set the stage for a period of heavy snow. The heaviest bands set up across the mountains of North Carolina, the Mountain Empire of Virginia and Mercer County West Virginia. Amounts were lighter along and east of the Blue Ridge where precipitation amounts were less due to the southern track of the storm.

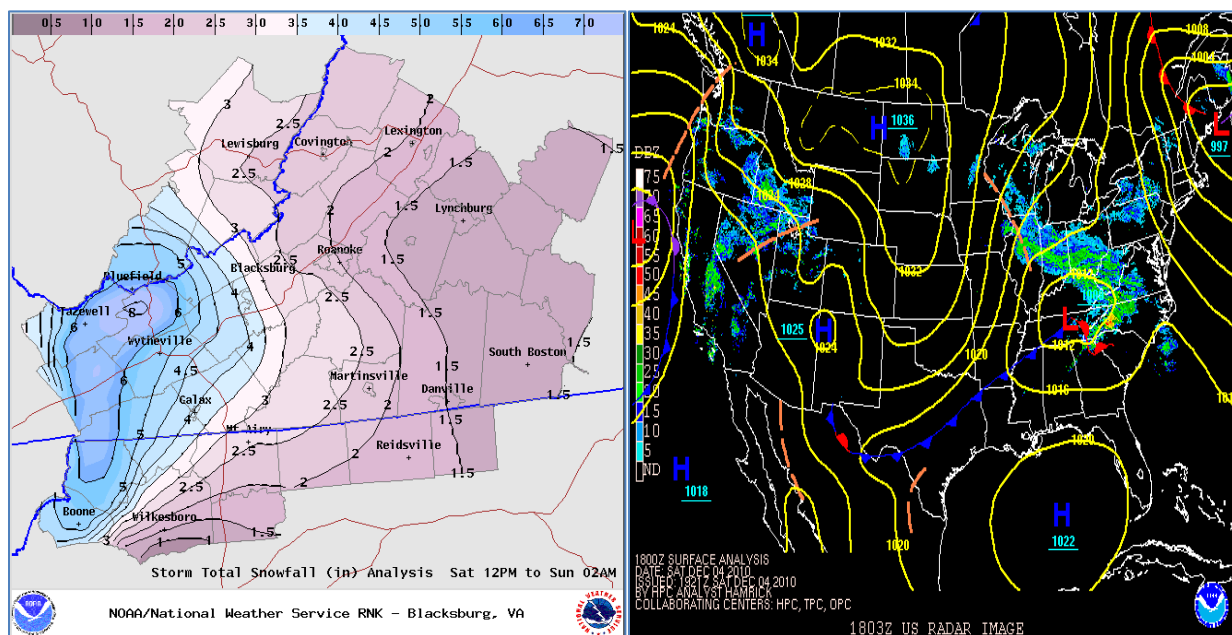


Figure 2: Total Clipper Snowfall (left). Surface Map and Radar at 1pm on the 4th (right).





# NOAA 'Bout Weather



## December 16<sup>th</sup> mixed Precipitation Event

An area of low pressure moved from the southern plains on the 15<sup>th</sup> to along the central Kentucky and Tennessee border on the 16<sup>th</sup>. A wedge of high pressure over the area locked in cold air at the surface. At the same time warm moist air was moving in aloft up and over this low level cold air. This lift combined with large scale lift generated by strong upper level winds helped widespread precipitation break out across the Blacksburg County Warning Area. The precipitation started as snow; however enough warm air moved in aloft to change this to sleet and eventually freezing rain across southern and western locations. As can be seen in the map below, the heaviest snow band set up over southeast West Virginia and the Alleghany Highlands of Virginia, where 5 to 8 inches of snow fell. While the warmest air aloft moved in along the southern Blue Ridge Mountains and the Mountain Empire of Virginia, where a quarter inch or more of ice accretion occurred before surface temperatures went above freezing during the afternoon.

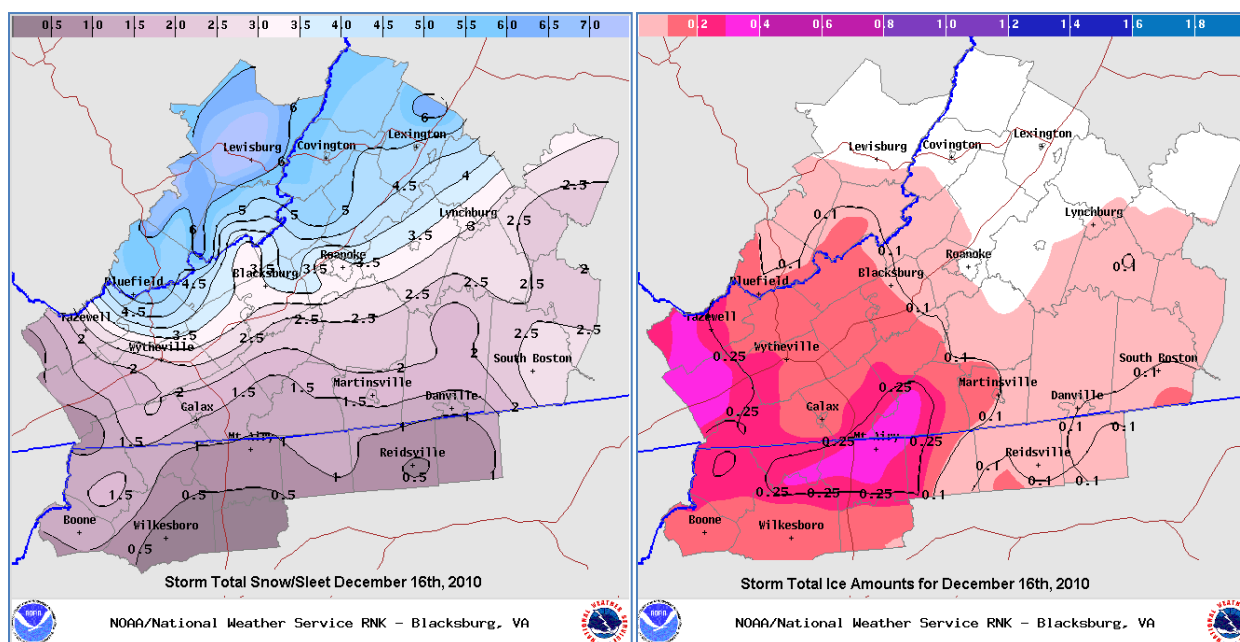


Figure 3: Storm Total Snow/sleet (Left). Storm Total Ice Accretion (Right).

### **HEAT SAFETY**

Heat kills by taxing the human body beyond its abilities. In a normal year, about 175 Americans succumb to the demands of summer heat. In the 40-year period from 1936 through 1975, nearly 20,000 people were killed in the United States by the effects of heat and solar radiation.

To protect yourself from the dangers of heat this summer, follow these safety tips:

**Slow down.** Strenuous activities should be reduced, eliminated, or rescheduled to the coolest time of the day. **Dress for summer.** Lightweight light-colored clothing reflects heat and sunlight, and helps your body maintain normal temperatures. Drink plenty of **water or other non-alcohol fluids**. Your body needs water to keep cool. Drink plenty of fluids even if you don't feel thirsty. **Spend more time in air-conditioned places.** Air conditioning in homes and other buildings markedly reduces danger from the heat.

**Don't get too much sun.** Sunburn makes the job of heat dissipation that much more difficult.

Spring 2011 Edition



# NOAA 'Bout Weather



## Christmas Day Snow

The storm that impacted our area on Christmas Day into the 26<sup>th</sup> was a complex system that produced snow in 3 waves. The first wave came across Christmas morning and was a weak upper level wave. This produced mainly light snow and accumulations were generally 1 to 3 inches. By afternoon Christmas Day, our next wave was already beginning to impact the region. This snow was the result of a strong area of low pressure that formed in the Gulf of Mexico and moved up the Atlantic coast. This storm was much stronger and had more moisture available than the first wave. We were on the far northwest side of the storm which prevented snow totals from being too high. However significant amounts of snow of between 4 and 8 inches did make it into far southern Virginia and into North Carolina. The 4.3 inches of snow that fell in Danville Virginia made it the snowiest Christmas Day on record.

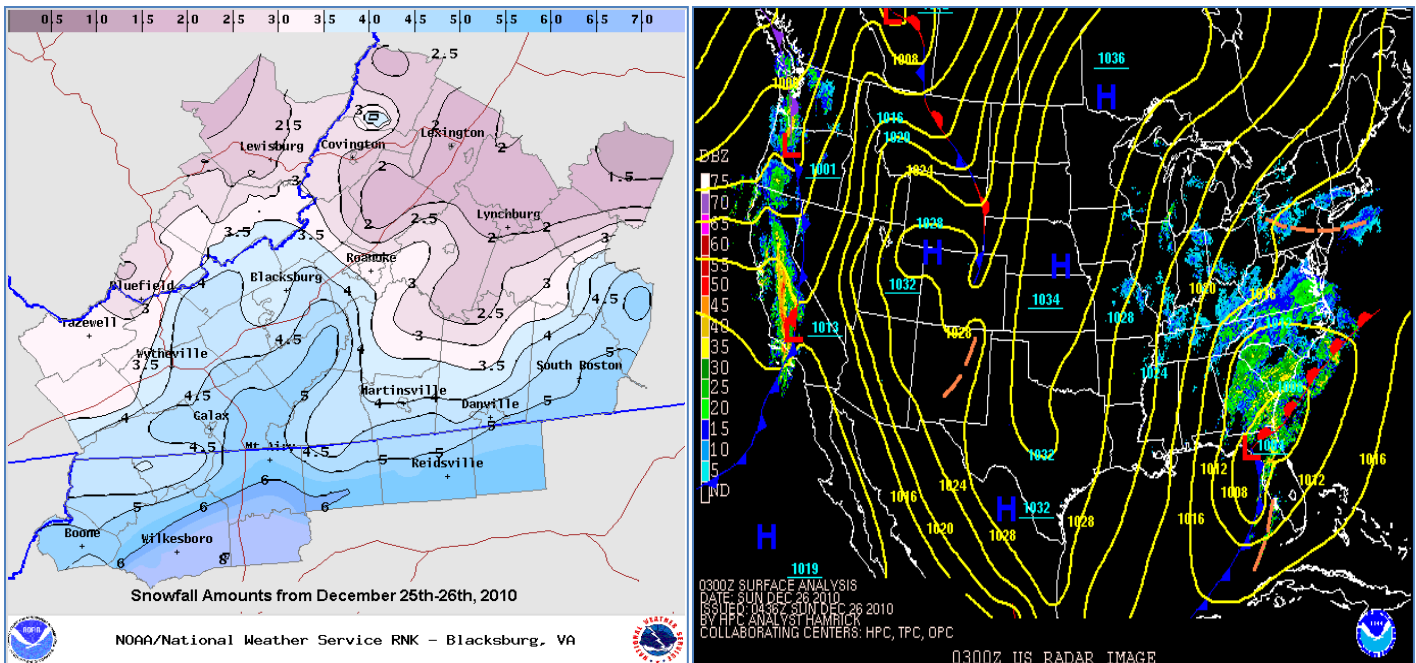


Figure 4: Surface Map and Radar from wave 1 at 4AM Christmas Day (Left). From Wave 2 at 10pm on the 25th (Right)

### **NOAA WEATHER RADIO "ALL-HAZARDS"**

Perhaps the best thing you can do to prepare for the dangers of severe weather is to stay informed. The quickest method of receiving potentially life-saving National Weather Service warnings is by owning a NOAA Weather Radio All-Hazards (NWR).

NWR broadcasts warnings for all types of hazards – including natural (such as tornadoes), environmental (such as chemical releases), and public safety (such as AMBER alert).

Weather Radios can be purchased at most electronic and large retail stores. They are battery powered so alerts can be received even when power is out. Most models now have the ability to program specific counties to be alerted.

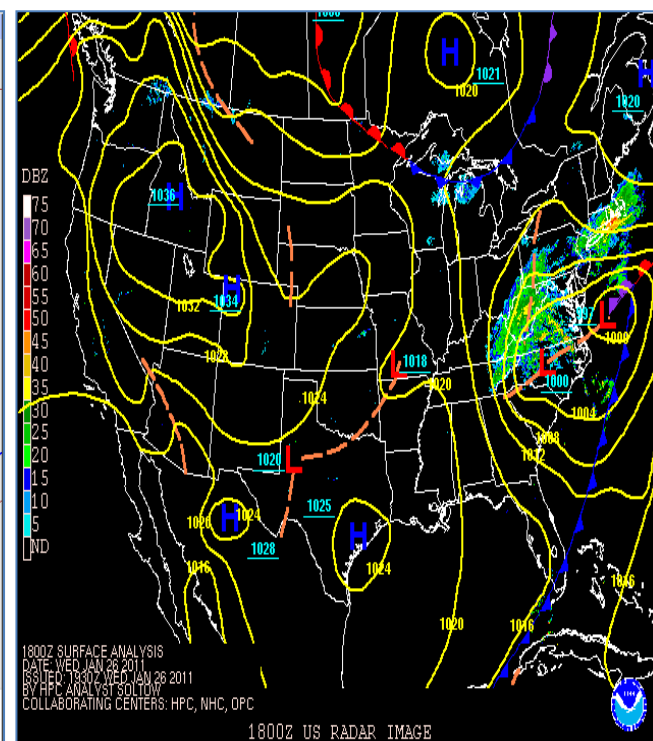
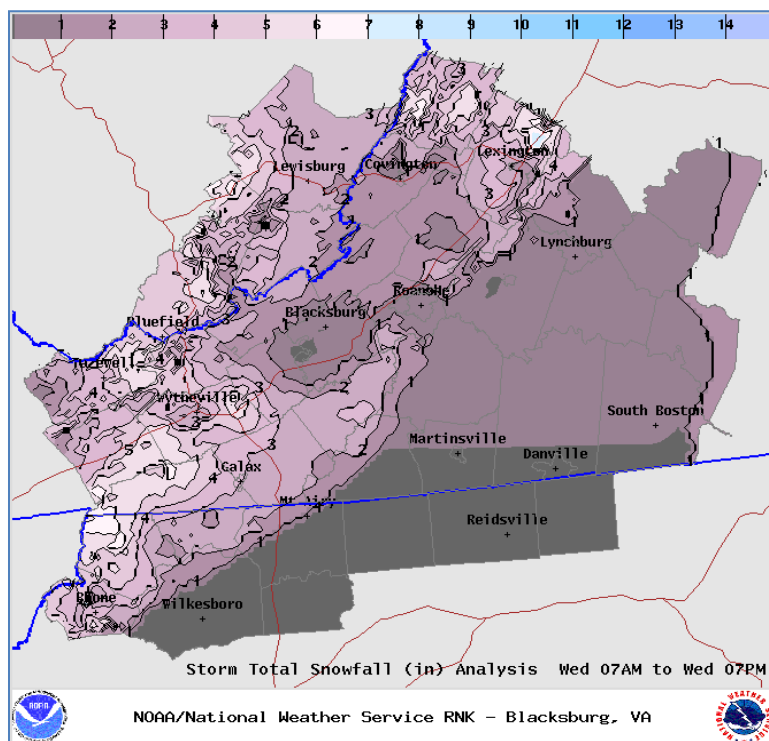


# NOAA 'Bout Weather



## January 26<sup>th</sup> Snow/Rain

The January 26<sup>th</sup> storm was a very challenging and complex system. A coastal low pressure developed off the North Carolina coast and moved up the eastern seaboard as forecasted. Most of the precipitation with this area of low pressure passed to our south and east. However an upper level low was forecast to pass over us during the day of the 26<sup>th</sup> bringing significant precipitation to the Blacksburg County Warning Area. Initially temperatures were expected to be warm enough for rain, but temperatures were forecasted to cool as the heavier precipitation moved in. When air rises it cools, so it was expected that strong lift generated by the approaching upper level wave would cool the atmosphere enough to change the rain over to snow across most locations. As the day of the 26<sup>th</sup> progressed it became apparent that widespread heavy precipitation was not going to occur. Instead locally heavy bands of precipitation developed, with locations outside of these bands seeing just light rain. The lift and the downward push of cold air generated by the light rain was not enough to cool the low levels to near freezing. And thus locations outside of the heavier bands received just light rain and snow mix with little accumulations. While locations under the heavy bands saw a change to a heavy wet snow and significant accumulations occurred. Higher elevations were also able to see more accumulation than the valleys due to colder surface temperatures. As can be seen below; the heaviest amounts were across the higher elevations, northwest North Carolina, far southwest Virginia, southeast West Virginia, and the Alleghany Highlands of Virginia.





# NOAA 'Bout Weather



## Want to Save Lives? Contact the NWS with your Weather Reports

By Phil Hysell (Warning Coordination Meteorologist)

Tornadoes, hail, damaging winds, flooding, snow and ice, The National Weather Service (NWS) is responsible for issuing warnings for many types of severe weather. We have many tools to help us anticipate and warn for these hazards. However, ground truth reports of actual weather events always have, and always will, be a valuable part of the warning process.

These ground truth reports are disseminated through local media outlets, and motivate citizens in the path of the storm to seek shelter. Many studies have shown that we are much more likely to take action from an

approaching storm if we perceive the threat is real. Imagine a family in the path of a tornado or a line of storms with winds over 60 MPH. If they hear that trees have been blown down or homes have been damaged by high winds downstream, they will be much more likely to move to the basement. Your report of severe weather can potentially save someone's life! It is that important.

To reach us, simply call: 1-866-215-4324.

More information about reporting severe weather to the NWS can be found here:

<http://www.erh.noaa.gov/rnk/SkywarnMainMenu/ToolsMenu/Reporting.htm>

Remember, submitting your eyewitness accounts of significant weather events may be as close as you come to saving someone's life!

## **FLASH FLOOD SAFETY**

Flash floods and floods are the number one weather related killer across the United States. For more information on floods and flash floods please visit: [www.floodsafety.noaa.gov](http://www.floodsafety.noaa.gov).

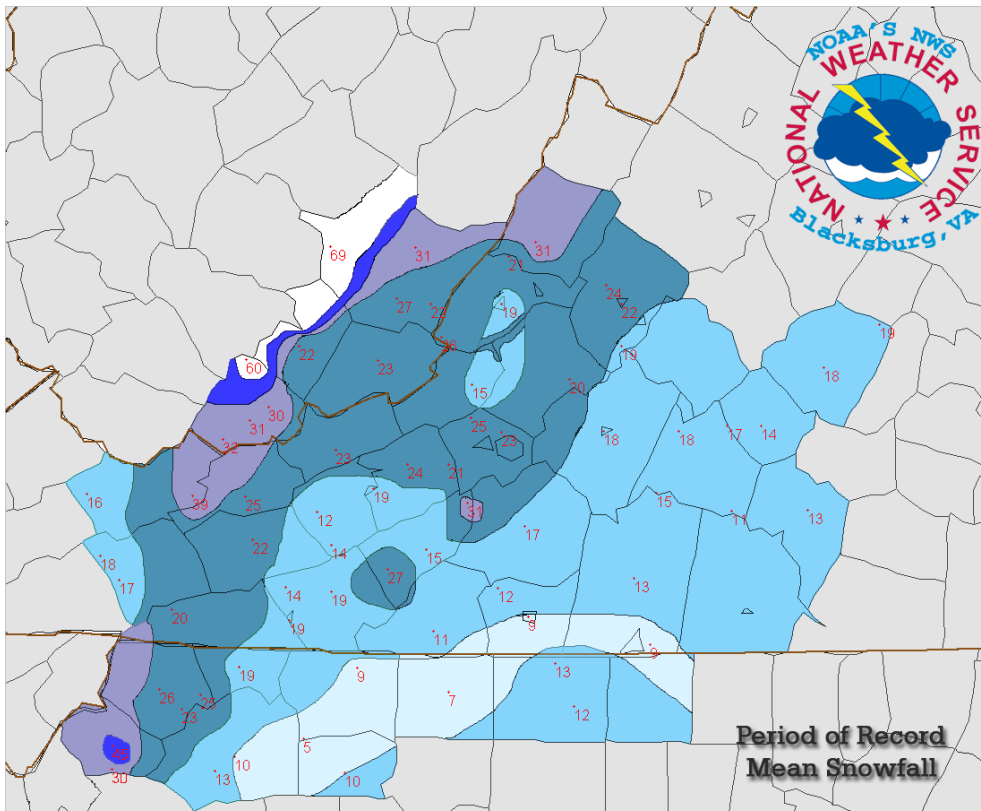
If driving, **DO NOT DRIVE THROUGH FLOODED AREAS!** Even if it looks shallow enough to cross. The large majority of deaths due to flash flooding are due to people driving through flooded areas. Water only one foot deep can displace 1500 pounds! Two feet of water can easily carry most vehicles. Roadways concealed by floodwaters may not be intact.

If caught outside, move to higher ground immediately! Avoid small rivers or streams, low spots, culverts, or ravines. Do not try to walk through flowing water more than ankle deep, as it only takes six inches of water to knock you off your feet. Do not allow children to play around streams, drainage ditches or viaducts, storm drains, or other flooded areas.





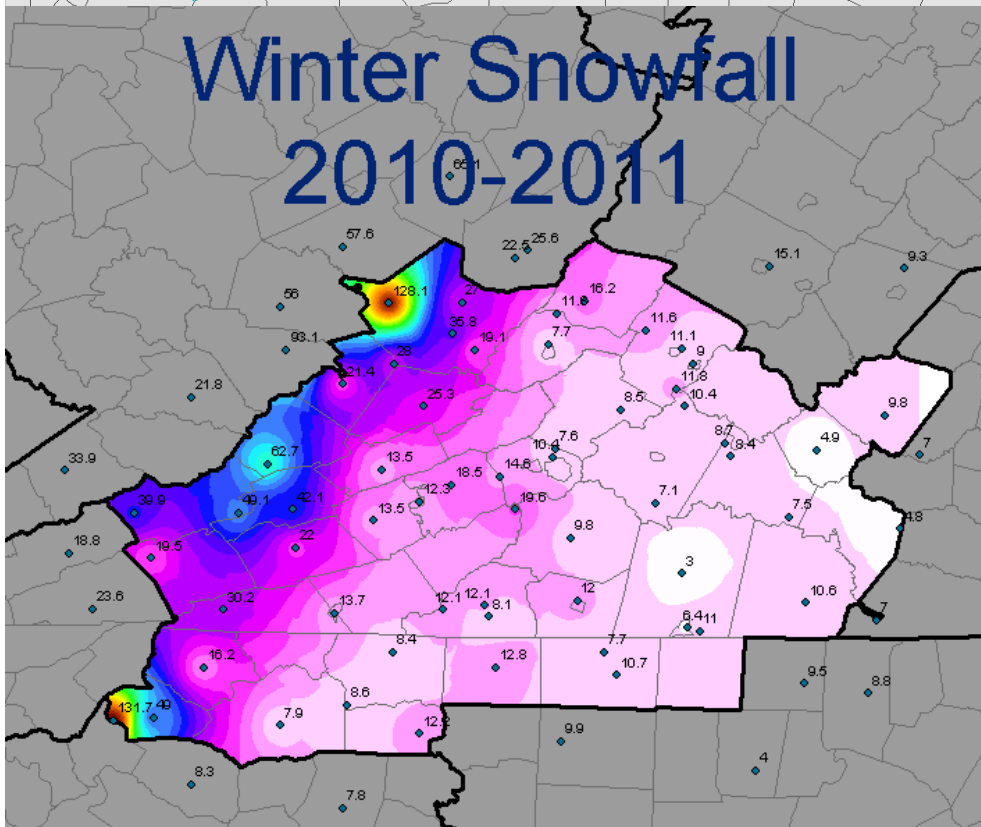
# NOAA 'Bout Weather



Period of Record  
Mean Snowfall

Top Left: Period of record average snowfall for our COOP and Climate Stations

Bottom Left: Winter 2010-2011 Snowfall for or COOP and Climate Sites. Maximum amounts of 131.7 and 128.1 at Beech Mountain, North Carolina and McRoss, West Virginia. Most other locations received between 7 and 20 inches. Upslope snow showers contributed to most of the snow across the western mountains.



Winter Snowfall  
2010-2011



# NOAA 'Bout Weather



## National Weather Service Blacksburg Welcomes Two New Employees

By Dave Wert (Meteorologist in Charge)

The staff at the National Weather Service (NWS) office in Blacksburg, VA is very pleased to announce the selection of two new employees who bring a wealth of new meteorological experience and technical competency to the office:

**Mr. Nicholas (Nick) Fillo** was selected for the Meteorologist (General Forecaster) position at the National Weather Service in Blacksburg effective on January 16, 2011. Nick received his B.S. Degree in Meteorology from Ohio University in November '99, and received his M.S. Degree in Geographic Information Systems (GIS) in August '10.

Nick's meteorological career began with the United States Air Force (USAF) in July 2000 – where he worked as a forecaster for four years. In September 2004, he ended his enlistment, but continued to serve as a contract Meteorologist and Systems Administrator for the USAF until his selection as a Meteorologist (Intern) for the NWS in Shreveport, LA in April 2006.

During the past five years, Nick has supported many critical NWS programs and worked in many capacities – including serving as webmaster, supporting the co-operative observer network and working on associated observational equipment, conducting Federal Aviation Administration (FAA) weather observing site inspections, providing outreach and spotter talks, and teaching the S-290 fire weather course for the United States Forestry Service (USFS). He served a one-month assignment at the NWS Southern Region Headquarters in their emergency Regional Operations Center (ROC) - providing coordination support to NWS offices during significant hazardous weather events, and performing GIS-related tasks.

As a result of Nick's strong skills in webpage development, GIS applications and general programming, he utilized ArcGIS software to automate and improve Southern Region graphiccasts that are now viewable on many Southern Region NWS homepages. In addition, he is part of a team working to develop a NWS-wide significant weather events archive, where a user can access the historical weather event information of any NWS office from a single website. This project is designed to tie into development of GPS/GIS-based application that NWS meteorologists will use during post-damage storm surveys. The implementation of these two applications will allow information statements, maps of storm tracks, and damage photos to be made available to the public more quickly than ever before.

Nick has worked many challenging forecast shifts since his selection as a Meteorologist for the NWS in 2006 - including working at the NWS office in Shreveport, LA when Hurricanes Gustav & Ike made landfall along the Gulf Coast in 2008.

The NWS office at Blacksburg is very fortunate to have Nick join the Blacksburg team. His strong military and civilian meteorological experience, combined with formidable programming and GIS skills, and a positive "can-do" and supportive attitude will further enhance the service that the Blacksburg office provides to its customers and constituents.

**Mr. Eric Hilgendorf** was selected for the Meteorologist (Intern) position at the National Weather Service (NWS) in Blacksburg effective on January 2, 2011. Eric received his B.S. degree in Meteorology from NC State University in Raleigh in May of 1994, and received his MS degree from Colorado State University in December of 1996.

Eric's professional experience ranges from working as an Engineering Research Assistant for the EPA (June '92-July '93), serving as a Research Assistant for the Cooperative Institute for Research in the Atmosphere (March '97-July '00), working as a Meteorologist (General Forecaster) and Incident



# NOAA 'Bout Weather



Meteorologist (IMET) while spinning up the fire weather program at the NWS office in Oxnard, CA (February '01-March '04), serving as a Hazards Meteorologist for Trinity Consultants Corporation (October '05-July '06), and working in various mainly non-meteorological positions from late '06 until his selection at NWS Blacksburg.

The NWS office at Blacksburg is very fortunate to have Mr. Hilgendorf return to the NWS family. His extensive past meteorological experience in both the Federal and private sector greatly benefits the office, and his strong work ethic and dynamic and endearing personality brightens the work environment.



**National Weather Service  
Weather Forecast Office Blacksburg  
1750 Forecast Drive  
Blacksburg, VA 24060**

**Stay Safe This Severe Weather Season!**